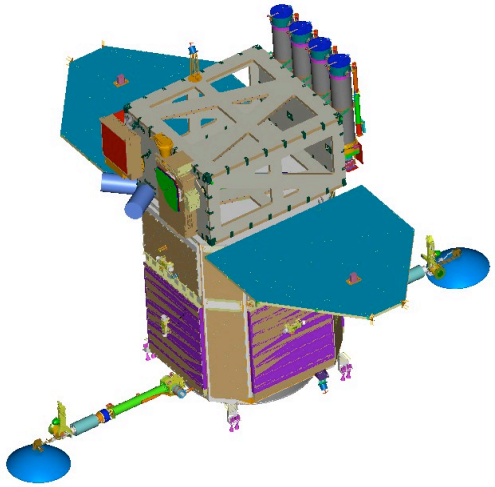
Solar Dynamics Observatory

The First Space Weather Research Network Mission in NASA's Living With A Star Program



Mission Science Objectives

SDO's goal is to understand, driving towards a predictive capability, the solar variations that influence life on Earth and humanity's technological systems by determining

•*How the Sun's magnetic field is generated and structured*

•*How this stored magnetic energy is converted and released into the heliosphere and geospace in the form of solar wind, energetic particles, and variations in the solar irradiance.*

Mission Specs:

- August 2008 launch
- Inclined Geosynchronous Orbit
- Dedicated ground station
- Continuous 150 Mbps Ka-Band downlink
- Developed and managed at GSFC
- Flight hardware is being built
- Flight software is being written

Key Technologies

- Ethernet Chipset
- Ka-Band Transmitter
- Active Pixel Star Tracker

Science Investigations

Helioseismic and Magnetic Imager (HMI)

PI Institution: Stanford University

Images the Sun's helioseismic, longitudinal and vector magnetic fields to understand the Sun's interior and magnetic activity

EUV Variability Experiment (EVE)

PI Institution: University of Colorado

Measures the solar extreme ultraviolet (EUV) spectral irradiance to understand variations on the timescales which influence Earth's climate and near-Earth space

Atmospheric Imaging Assembly (AIA)

PI Institution: Lockheed Martin Solar Astrophysics Laboratory

Images the solar atmosphere in multiple wavelengths to link changes to surface & interior changes